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LE, LANA N	

ART UNIT	PAPER NUMBER
2685	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/721,854	ROSEN ET AL.	
	Examiner	Art Unit	
	Lana N Le	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

2. Applicant's arguments with respect to claims 1-3, 5-23, 25-40 filed 01-29-04 have been fully considered but they are not persuasive.

Regarding independent claim 1, 15, 18, 23, 28, 35, 37, and 39, applicant's remarks state that the communication platform doesn't have a transponder to communicate and that the inherent transponder of the cited reference doesn't disclose a bent pipe system. However, by definition, a transponder is a radio relay equipment on board the aircraft in a bent pipe or relay communication system. Therefore, it is inherent within an airplane that a transponder is used to relay signals from a ground station via the airplane to another destination ground station using transmitter/receiver pair 166 or gateway antenna 168 (col 8, lines 1-23; col 9, lines 3-10) as is disclosed by Martin et al in which the aircraft 12 acts as a relay station between gateway devices 22 (see col 5, lines 30-42 and col 5, lines 50-55).

the aircraft receives data from gateway device 22 and retransmits the data to another gateway 22 or CPE 18 in which the aircraft 12 acts as a repeater station to route and/or relay data from an originating device to a destination device (col 5, lines 30-42) retransmit/relay the received data from the originating device to the destination device in the cited Martin reference acting as "a radio relay equipment on board the aircraft in a bent pipe or relay communication system"

With regard to "substantially stationary" the word "substantially" means "largely but not wholly" in which the aircraft 12 does not have to be stationary or fixed. In order to be consistent with applicant's invention, the "substantially stationary" has to correspond to the definition within the specification in order to make sense of the invention. Therefore, again as pointed out in the response to arguments in the final office action sent 05/22/03 according to applicant's specification, page 7, lines 19-23, "the platform flies in a small radius flight path 118 typically a circle, ellipsoid, or other shaped path over a given spot over the earth" which corresponds in the cited reference to "predefined orbit 30 which can be circular, elliptical, or any other suitable orbit to maintain the ASN 14 positioned over above service region 16".

With regard to antenna's beamwidth of the fixed user terminal of applicant's invention, applicant's argument as to user's active control of the gateway antenna. However, in col 6, lines 31-35 of the reference there is no manual user intervention required but the antenna automatically points at the aircraft to receive millimeter wave signals from the aircraft 12, and again as pointed out in the response to arguments in the final office action sent 05/22/03, the Martin reference discloses the antenna's beamwidth is wide enough to be capable of receiving millimeter signals and also transmitting to the aircraft 12 as cited in col 5, lines 30-42 of the reference to route the data to another gateway.

Regarding dependent claims 4, 24, 34, 36, 38 and 40, according to col 3, line 63 - col 4, line 11 of Martin et al, the gateway device 22's antenna beamwidth is narrow and capable of receiving millimeter wave frequency signals from the aircraft 12 flying in a circle of a predefined diameter providing continuous communication capabilities to

service region 16 which in other words, even within the predefined circle discussed in the above paragraph, the gateway's antenna is still able to receive signals from the aircraft within its narrow beamwidth which reads on the claims' broad limitation "the platform maintains an apparent position relative to the user terminal within the beamwidth of the user terminal antenna".

2. Applicant's amendment with respect to claims 4 and 24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-9, 14-16, 18-21, 23-25, and 28-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Martin et al (US 6,061,062).

Regarding claim 1, Martin et al discloses a communications system (fig. 1), comprising: a gateway 22, communicatively coupleable to a terrestrially based network 54 (col 6, lines 44-53); a communications platform 12 disposed in a stratospheric location (col 3, lines 54-55), for transponding information between at least one of a plurality of user terminals 18 (col 4, lines 63-65) and the gateway 22 (col 5, lines 30-43; col 6, lines 19-23).

Regarding claim 2, Martin et al further discloses the communications system of claim 1, wherein the gateway 22 aggregates all data traffic comprising the information between the plurality of user terminals 18, 22 (col 6, lines 44-53).

Regarding claim 3, Martin et al further discloses the communications system of claim 1, wherein: the gateway 22 aggregates all data traffic comprising the information between each of the user terminals 18, 22 and the terrestrially based network 54 (col 6, lines 44-53).

Regarding claim 5, Martin et al further discloses the communications system of claim 1, wherein the system comprises more than one communications platform (col 3, lines 64-67).

Regarding claim 6, Martin et al further discloses the communications system of claim 5, wherein the gateway communicates with more than one communications platform (col 5, lines 50-65; col 3, lines 64-67).

Regarding claim 7, Martin et al further discloses the communications system of claim 6, wherein the user terminal communicates with only one communications platform 12 (col 5, lines 50-65; col 3, lines 64-67; center of fig. 1).

Regarding claim 8, Martin et al further discloses the communications system of claim 1, wherein the user terminal communicates with the communications platform 12 in a first frequency band, and the communications platform 12 communicates with the gateway 22 in a second frequency band (col 14, lines 18-25).

Regarding claim 9, Martin et al further discloses the communications system of claim 1, wherein the stratospheric location of the communications platform is within a predetermined distance of at least 52,000 feet above ground of the user terminal to maintain communications between the communications platform and the user terminal (col 3, lines 61-63).

Regarding claim 14, Martin et al further discloses the communication system of claim 1, wherein the information is transponded according to a coding technique selected from the group comprising time division multiple access (TDMA) and code division multiple access (CDMA) (col 5, lines 44-50).

Regarding claim 15, Martin et al discloses a communications signal, generated by performing the steps of receiving a first signal from a user terminal having a user terminal antenna in a stratosphere based communications platform 12, wherein the communications platform maintains an apparent position relative to the user terminal within a focused beamwidth of the user terminal 18, 22 antenna towards the aircraft 12 (col 4, lines 8-11); and transponding the first signal from the stratosphere based

communications platform to a gateway ground station 22 (col 5, lines 30-43; col 6, lines 19-23).

Regarding claim 16, Martin et al further discloses the signal of claim 15, wherein the terrestrially based network is the Internet (col 6, lines 44-49).

Regarding claim 18, Martin et al discloses a method for communicating from a user terminal 18, comprising:

receiving a first signal from the user terminal having an antenna in a stratosphere-based communications platform 12, wherein the communications platform maintains an apparent position relative to the user terminal within a focused beamwidth of a user terminal antenna (col 4, lines 1-11); transponding the first signal from the stratosphere based communications platform 12 to a gateway ground station 22 (col 5, lines 30-42; col 6, lines 19-23).

Regarding claim 19, Martin et al further discloses the method of claim 18, further comprising the steps of receiving the first signal from the gateway ground station 22 in the communications platform 12 (col 5, lines 36-39); and transponding the first signal from the communications platform to a second user terminal 20 (col 5, lines 39-42).

Regarding claim 20, Martin et al further discloses the method of claim 18, further comprising the steps of transmitting the first signal from the gateway ground station 22 to the terrestrially based network (col 6, lines 44-53).

Regarding claim 21, Martin et al further discloses the method of claim 20, wherein the terrestrially based network is the Internet (col 6, lines 44-53).

Regarding claim 23, Martin et al communications system, comprising:

a user terminal 18 for transmitting and receiving data through a terrestrial based network (col 6, lines 44-53); and wherein the user terminal 18 communicates with a gateway 22 via a an inherent stratospheric based communications platform transponder located in aircraft 12 for relaying signals from the user terminal to the gateway (col 5, lines 30-43; col 6, lines 19-23).

Regarding claim 25, Martin et al further discloses the communications system of claim 23, wherein the user terminal communicates with the communications platform in a first frequency band, and the communications platform communicates with the gateway in a second frequency band (col 14, lines 18-25).

Regarding claim 28, Martin et al discloses a communications system (figure 1), comprising: a communications platform 12, the communications platform being located in a substantially geo-stationary in the stratospheric location (col 3, lines 54-58), the communication platform 12 having an inherent transponder for relaying from the aircraft 12 (col 4, lines 12-15) for communicating directly with a user terminal in cell 42, for receiving information from the user terminal and for transmitting information to the user terminal (col 3, lines 54-67; col 5, lines 30-43);
and a gateway 22, communicating with the communications platform, for coupling the user terminal with a terrestrial based network PSTN 54 or fiber backbone connected to the Internet through the communications platform (col 6, lines 44-53).

Regarding claim 29, Martin et al further discloses the communications system of claim 28, wherein the system comprises more than one communications platform 12 (center and upper left aircraft 12).

Regarding claim 30, Martin et al further discloses the communications system of claim 29, wherein the gateway communicates with more than one communications platform (col 5, lines 56-65).

Regarding claim 31, Martin et al further discloses the communications system of claim 30, wherein the user terminal communicates with only one communications platform 12 (center of fig. 1).

Regarding claim 32, Martin et al inherently further discloses the communications system of claim 1, wherein the user terminal communicates with the communications platform in a first frequency band, and the communications platform communicates with the gateway in a second frequency band (col 14, lines 18-25).

Regarding claim 33, Martin et al discloses the communications system of claim 32, wherein the stratospheric location of the communications platform is within a predetermined distance of the user terminal to maintain communications between the communications platform and the user terminal (col 3, lines 61-63).

Regarding claim 34, Martin et al further discloses the communications system of claim 28, wherein the user terminal includes a user terminal antenna characterizable by an untrackable beamwidth (col 3, line 63 – col 4, line 11) and the communications platform stays within the beamwidth of the terminal antenna (col 8, lines 24-54; col 4, lines 34-48).

Regarding claim 35, Martin et al discloses a communications signal, generated by performing the steps of:

sending a first signal from the user terminal 18 to a substantially geostationary stratosphere based communications platform 102 (col 3, lines 54-67);
transponding the first signal from the substantially geostationary stratosphere based communications platform to a gateway ground station 22 (col 5, lines 30-43); and transmitting the first signal from the gateway ground station to the terrestrial based network Internet (col 6, lines 44-53).

Regarding claim 36, Martin et al further discloses the communications signal of claim 35, wherein the first signal is transmitted from the user terminal to the stratosphere based substantially geostationary communications platform by a user terminal antenna characterizable by an untrackable beamwidth, and the communications platform stays within the beamwidth of the user terminal antenna (col 8, lines 24-54; col 3, line 63 –col 4, line 11).

Regarding claim 37, Martin et al discloses a method for communicating between a user terminal 18 and a terrestrial based network, comprising:
sending a first signal from the user terminal to a substantially stationary stratosphere based communications platform 12 via ASN 14 (col 3, lines 54-67); transponding the first signal from the substantially stationary stratosphere based communications platform 12 to a gateway ground station 22 (col 5, lines 30-43); and transmitting the first signal from the gateway ground station to the terrestrial based network connected to the Internet (col 6, lines 44-53).

Regarding claim 38, Martin et al further discloses the method of claim 37, wherein the first signal is sent from the user terminal to the stratosphere based

substantially geostationary communications platform by a user terminal antenna characterizable by an untrackable beamwidth, and the communications platform stays within the beamwidth of the user terminal antenna (col 8, lines 24-54; col 3, line 63 –col 4, line 11).

Regarding claim 39, Martin et al discloses a communications system, comprising: a user terminal 18 for transmitting and receiving data through a terrestrial based network wherein the user terminal communicates directly with a transponder 14 on a communications platform 12 located in a substantially geostationary stratospheric location (col 3, lines 54-67; col 5, lines 30-43); and

a gateway 22, communicating with the communications platform 12, for communicatively coupling the terrestrial based network to the user terminal through the communications platform 102 (col 6, lines 30-53).

Regarding claim 40, Martin et al further discloses the communications system of claim 39, wherein:

the user terminal includes a user terminal antenna characterizable by an untrackable beamwidth; and the communications platform stays within the beamwidth of the terminal antenna (col 8, lines 24-54; col 3, line 63 – col 4, line 11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 6,061,562).

Regarding claim 12, Martin et al the communications system of claim 1, wherein Martin further discloses multiple networked ASNs 14 provide for overlapping coverage areas 16 for higher reliability of service to the subscribers. Martin didn't specifically disclose the aircrafts are in overlapping positions. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the platforms in overlapping positions in order to cover overlapping service areas 16 to provide higher reliability with less service loss to subscribers that might fall between these service areas.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al in view of McKenna et al (US 6,377,802) and further in view of Emmons Jr. et al (US 6,570,858).

Regarding claim 13, Martin et al further discloses the communications system of claim 1, wherein each user terminal 18 is associated with a cell (col 4, lines 64-65) and user terminals in cells 42 communicate with different communication platforms 12 (col 5, lines 56-65). McKenna et al discloses user terminals in overlapping cells (fig. 5) communicate with communication platform (col 3, lines 19-67; col 10 line 8 - col 11, line 31). Martin et al and McKenna et al didn't specifically disclose the user terminals communicate with the communication platform via spatial diversity. Emmons et al further discloses the user terminals communicate with the communication platform via spatial diversity (col 5, lines 19-22; fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have overlapping cells coverage and for the user terminals to use spatial diversity in order to increase call handling capability with a low chance of receiving a degraded signal.

7. Claims 10, 17, 22 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 6,061,562) in view of Brown (US (6,157,621).

Regarding claim 10, Martin et al further discloses the communications system of claim 1, wherein Martin et al didn't further discloses the gateway comprises a plurality of gateway antennae, separated from each other by a distance sufficient to provide spatial diversity in communicating with the communications platform. Brown et al further discloses the gateway comprises a plurality of gateway antennae 106, separated from each other by a distance sufficient to provide spatial diversity in communicating with the communications platform (col 35, lines 40-50). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to provide spatial diversity in order to gain a high probability of receiving a clear undiminished signal.

Regarding claim 17, Martin et al further discloses the signal of claim 15, wherein the antenna 168 transpond to gateway ground station 22 (col 8, lines 13-17), Martin didn't specifically disclose the first signal is transmitted in one of a plurality of beams to the gateway ground station having a plurality of antennae disposed to provide spatial diversity among each of the plurality of beams. Brown et al further discloses the first signal is transmitted in one of a plurality of beams to the gateway ground station having a plurality of antennae 106 disposed to provide spatial diversity among each of the plurality of beams (col 35, lines 40-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide spatial diversity in order to obtain a higher chance of receiving a non-faded signal.

Regarding claim 22, Martin et al further discloses the method of claim 18, wherein the antenna 168 transpond to gateway ground station 22 (col 8, lines 13-17). Martin et al didn't further disclose the first signal is transponded by one of a plurality of beams to the gateway ground station having a plurality of antennae disposed to provide spatial diversity among each of the plurality of beams. Brown et al further discloses the first signal is transponded by one of a plurality of beams to the gateway ground station having a plurality of antennae 106 disposed to provide spatial diversity among each of the plurality of beams (col 35, lines 40-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide spatial diversity in

order lower the effect of fading by adding redundancy to the transmission/reception of the signal.

Regarding claim 26, Martin et al further discloses the communications system of claim 23, wherein Martin et al didn't further discloses the gateway comprises a plurality of gateway antennae, separated from each other by a distance sufficient to provide spatial diversity in communicating with the communications platform. Brown et al further discloses the gateway comprises a plurality of gateway antennae 106, separated from each other by a distance sufficient to provide spatial diversity in communicating with the communications platform (col 35, lines 40-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide spatial diversity in order to achieve a high probability of receiving a clear undiminished signal.

Regarding claim 27, Brown et al and Martin et al discloses the communications system of claim 26, wherein Brown et al and Martin et al didn't further specifically disclose the distance is at least 200 meters. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make this distance in order to ensure antenna diversity is achieved by spacing the antennae apart by a significant fraction of the wavelength.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 6,061,562) in view of Brown (US (6,157,621) and further in view of Antonio et al (US 6,339,611).

Regarding claim 11, Martin et al and Brown et al disclose the communications system of claim 10, wherein Antonio et al further discloses the user terminals communicate with the communications platform using a communication diversity selected from the group comprising: spatial diversity; and polarization diversity (col 8, lines 30-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide communication diversity in order to communicate with increased link margin with improved capacity and high power efficiency and to lower the effect of fading.

9. Claims 4 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al in view of MacDoran et al (US 4,797,677).

Regarding claim 4, Martin et al further discloses the communications system of claim 1, wherein: Martin further disclose the user terminal 18 includes a user terminal antenna characterizable by a beamwidth (col 4, lines 1-11); and the communications platform 12 maintains an apparent position relative to the user terminal within the focused beamwidth of the user terminal antenna (col 8, lines 24-54). Martin didn't further disclose the antenna is unsteerable. MacDoran et al discloses the antenna is unsteerable (col 44, lines 52-61). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have an unsteerable antenna in order to point the antenna in one direction from one point to another point directly at the destined station.

Regarding claim 24, Martin et al further discloses the communications system of claim 23, wherein the user terminal includes a user terminal antenna characterizable by

a beamwidth(col 4, lines 1-11); and the communications platform maintains an apparent position relative to the user terminal within the focused beamwidth of the user terminal antenna towards the aircraft 12 (col 4, lines 1-11). Martin didn't further disclose the antenna is unsteerable. MacDoran et al discloses the antenna is unsteerable (col 44, lines 52-61). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have an unsteerable antenna in order to point the antenna in one direction from one point to another point directly at the destined station.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N Le whose telephone number is (703) 308-5836. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lana Le

September 14, 2004